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ABSTRACT

This study discusses some of the problems and inconsistencies with the Universal Decimal Classification (UDC) system. Present problems and concerns are attributed to: (1) lack of an up-to-date master edition and clear directives for UDC usage; (2) UDC structural and notational problems, particularly with regard to filing order for auxiliaries and single and double colored numbers; (3) twin hierarchies generated by special auxiliaries; (4) identical material being to implement an international reference code with coupling devices to different indexing languages for unifying and switching between otherwise incompatible classifications and thesauri. The author contends that these problems are impeding user acceptance of UDC as a universal classification system. (JPF)

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ON UDC WITH SOME MALICE

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

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INTRODUCTION

The Dewey centennial is being celebrated at a moment when its future looks bright. The computer age has brought within reach international shared cataloguing and from now on library work will be cooperative with interchange of machine readable bibliographical data. In descriptive cataloguing unification and standardization is going on. As regards classification there are as yet no decisions for the national bibliographies. Dewey is used by a great number of them and carried on the Anglo-American MARC tapes and included in the LC CIP service. Thus Dewey is already used in the classification data interchange whereas UDC is not. This does not mean that UDC has never been tried in central repertories. Already in 1946 M. Gosset wrote about the Science Library central bibliographic UDC index [1] :

"U.D.C. is a standard system, not based on any language, yet the personal equation looms largely in its employment. There always will be different points of view and different methods of actually using the same numbers. ... The extensive use of the colon also leads to trouble. ... Classifiers can not be made to use "extensions" and many do not. When the "extension" is a real extension of an existing number the business is not so troublesome, but when it is a change of number, then complications arise."

In 1968 E.R. Sukiasjan, Chief librarian at the Lenin Library, wrote thus [2] :

"The fewer the solutions which a classification system can give to identical questions, the more efficiently will classification numbers be used in libraries. A "flexible" classification system enables identical material to be classified in several different ways expressed in differently arranged classification numbers. UDC is such a system. It has been said that this is an advantage in ordinary classification, taking into account local conditions, but that it becomes a "Pandora´s box" in centralized classification."

Some of the complaints uttered by the above authors, the editions, the coloning, the multiflexibility, permissiveness and hospitality, will be dwelt upon in the present

study, never pretending that there would be no options at all in Dewey. But whereas the DDC Editorial Policy Committee has already accepted to reduce their number, the UDC management has never even pretended to do any such thing.

THE REVISION AND SCHEDULE PRODUCTION ANARCHY

Shared classification as well as classification at source presupposes that there is available a valid schedule for a certain period, say at least five years. UDC is updated on a non-stop basis. A valid up to date UDC edition can in fact never leave the print. UDC editions of all kinds are popping all the time all over the world and all differ. The instructions of "UDC Revision and Publication Procedure" (FID 429, 1968) read as follows:

"7.3. The offical "master version" of the complete UDC is the 2nd international edition (French, FID 151, 1927-33, out of print) as amended by all P-notes authorized from 1931 to date and included in the German full edition (7.32) and since 1949 in the "Ergänzungen" (FID 250, 1951) and subsequently issued "Extensions and Corrections to the UDC", FID 248.

A more widely available basic version of the UDC is that of the 3rd international edition (1st German, FID 196, 1934-53), brought up to date in the 8th international edition (2nd German, FID 297, 1958-).

This and all subsequent full editions based on FID 196 and 297 should conform in numbering and text to the updated FID "master version"."

Now, in spite of "intermittent efforts" the "much-needed, up-to-date master edition has never materialized" [3] at the FID General Secretariat and then, where else in the world will this scarce source material be kept assembled and properly checked for new editions? Besides, FID 248 is openly declared as no longer valid[4], so there is no point in citing the prescriptions for the medium and abridged editions. The forthcoming 3rd edition of the Swedish abridged UDC happens to be based on the Dutch and the German editions as well as on the trilingual

with supplement, etc. It is easy to see what this must lead to, without always being detected as in PC 75-35 stating that "69.07 appeared in Medium and other editions, but never in Extensions and Corrections". A.C. Foskett has informed us that [5]:

"The abridged edition was developed on a rather haphazard basis; at least, that is the impression that one gets on studying its relationship to the full edition. ... The position has been complicated even further in recent years with the development of the so called medium edition. ... it is not possible to determine the pattern by which the full schedules are reduced to "medium" size. ... One is forced to question the justification for the present methods of abridgement at either level."

No wonder a 1973 FID CCC meeting concluded that there was [6]:

"a need for better communication and co-operation among all parties concerned and a special urgency for clearer guidelines for UDC usage."

An international "Standard" edition of UDC in several languages, derived from and perhaps replacing the present medium editions, should be envisaged. The obvious need for a standard of a standard (BME, Basic Medium Edition), imparting a dubious standing to particularly the full editions, does not strike the UDC user as particularly amazing, neither the promise by H. Arntz [7] that it would be revised as soon as in the press. This imbroglio contributes substantially to excluding UDC from shared classification projects. Another drawback is that revision has been carried out only in those classes where there have been (active) committees, and that there has been nobody interested in new topics, literary warrant, scope notes, indexes (no mention of indexes in FID 429), which has resulted in a multitude of makeshift solutions and unauthorized inventions in classification practice. After F. Donker Duyvis there has been an immense activity at subdivision ("any fool can subdivide") and modification of text of existing

number ("The meaning of any existing number may be extended or restricted within reason, but not completely altered." FID 429: 1.5)), a shrewd and insidious procedure to dodge the 10-year rule and a real nuisance for the user and existing catalogues. There have also been some massive relocations in a more or less unrevised condition to make free space for some undefined future action, resulting for instance in the permanent vacancy at UDC 4. The much cited concordance studies [8] finding UDC equivalent codes for practically all the TEST sample descriptors, must be considered with regard to that TEST comprises 18000 descriptors and UDC 5 + 6, according to B.C. Vickery [9] 91000. Another scrutinity would maybe reveal how many UDC numbers are never used. A comparison with the Science Reference Library system [10]:

"based on the class "Physical chemistry" showed that whereas only 88 % of SRL classes could be located in UDC, only 32 % of UDC classes had a counterpart in the SRL scheme."

THE SEQUENCING DISORDER

Every classification system with claims to being faceted is supposed to lay down a citation order. The main body of UDC is enumerative, but there is a citation order for auxiliaries, i.e. the general categories etc. introduced by special symbols. The tables of the auxiliaries are presented in their filing sequence which, according to UDC dogma is supposed to be the reverse of the preferred citation order in compound or complex subject numbers. Stated differently; in compound number building with auxiliaries, after the main number is added that one auxiliary which is the most restrictive, i.e. one of the special auxiliaries, then going on to the common auxiliaries, and fn filing sequence it is the other way round, going from general to special. Picking out three auxiliaries, -, .0, and .00, the bottom of the

official master version of the complete UDC, i.e. the 2nd international edition 1927-33, gives as citation order:

analyse - et .0
point de vue .00

and filing order:

-
.00
.0

and this filing order is repeated through all the editions consulted for this study except the two English abridged editions 1957 and 1961 which give as filing order:

.00
-
.0

of course a much better method of going from general to special. So the "reverse citation" philosophy originated by Wüster[11] holds good in neither case. Thus, the hyphened special auxiliaries, being originally counterparts to main numbers, must of necessity be more special than the general categories expressed by .00 and, besides, more special than the .0 facets, thus:

.00
.0
-

As a matter of fact, in actual practice these citation instructions do not seem to be followed more often than other citation orders[12] even with "detachable" auxiliaries intercalated or in front of the main number etc. sanctioned at the FID CCC meeting in March 1974. Very little coincidence can be expected in shared cataloguing when it comes to citation order.

THE MUDDLE

The Muddle considered as a sequencing disorder was adequately described by S.C. Bradford.[13] The Muddle consists of coloned numbers to be filed immediately after the respective main number and this results in the special preceding the general (general categories, theory etc.) in a truly offensive way. There have been protests, that colon ought to be filed after A/Z,[14], that colon ought to be preceded by some auxiliary of point of view or .0-auxiliary (some revised schedules have introduced this, but halfheartedly). The Perrault relators with a similar, or rather syntactic, purpose, created quite a sensation in the late sixties and were incorporated into the system on a tentative basis, whereupon they were forgotten. In Table (b) of the English full edition 1943 we are warned that

"Colon compounds should not be employed to represent an idea which is a relationship between two ideas, each expressible by means of a simple number, when that relationship is itself expressed by a simple number in the Main Table"

How can users of shortened editions guess where there are main numbers in the full editions? In P 75-30 the double colon, approved by CCC, is proposed:

"Whereas the simple colon : should express all general coordinate relations between two or more concepts or subjects, so that reversal of the component numbers does not change the meaning, the double colon ::, by fixing the order of any two or more UDC mainnumber components, expresses subordinate specification of one dominant concept by other(s) to form a new complex subject number, whose meaning would be changed by reversal of its components. The double colon :: should be used only when no valid direct decimal subdivision or auxiliary is available."

The filing of the double colon is as a plain UDC number, thus preceding the simple colon. This is bound to split up Bradford's Muddle into two muddles. Muddle numbering adds to identical material being classified in different ways. This indexing procedure is a deceit in a hierarchical classification. It will be dealt with further below.

THE TWIN HIERARCHIES

Anybody interested in UDC practice ought to have come across the twin hierarchies generated by special auxiliaries at a base number more or less far apart from the location of the appropriate main number, e.g. machine elements at 62-2 (formerly 621-2) separated from 621.81, electrochemical equipment at 621.3.035 detached from 621.35, management at 65.01 as well as at 658, etc. Shafts are retrieved at 62-233.1 if not 621-233.1 as well as at 621.824, electrodes for electrolytic processes at 621.3.035.2 or even 621.3.035.2:621.357, as well as at 621.357.035.2, etc. There is no policy, it is all right to add a special auxiliary straight onto "primary facet number", i.e. a main number, and it is just as right to colon it from the base number to the main number, e.g. 669.3-42 or 669.3:669-42, if 669-42 can be considered as the base rather than 62-42. As stated in the abridged English edition 1961 the special auxiliaries can serve as fixed main numbers when used as they stand (attached to base number), i.e., when there is no main number for the concept. Now, the Deutsche Gesamtausgabe, 62, 1964, p. 11 gives an illustrative example:

62-72:621.313.3
62-72:621.614
621-72:625.24.012.251

disregarding that there is a main number, even printed in the alphabetical index, "Schmiervorrichtungen 621.896", and this example together with the introduction, is copied in the German and the French medium editions. What is the use of special auxiliaries? These auxiliaries (including "subdivide as" devices) are supposed to stand for recurring and generally subordinate concepts. Shortage of main numbers and lack of analysis and penetration in revisions and extensions have crowded special auxiliary tables with nonrecurring concepts. As to subordination,

"UDC Revision and Publication Procedure", FID 429, defines

2.31 Main UDC numbers, corresponding to main concepts
2.32 Auxiliary numbers, or simply "Auxiliaries", corresponding to subsidiary concepts

which, of course is far from the truth as long as outstanding contemporary disciplines as work study, 65.015, operations research, 65.012.122 and, until recently, control engineering 62-5 have no main numbers. There exists, for the present, no guiding principle for the notation in UDC. Transformation of the special auxiliaries with .0 into main numbers was discussed already at the Rome conference 1951[15]. The status of the special auxiliaries ought to be stated.

There are two principles, either multiple entry or single entry, i.e. once only. Number building occurs in both. In UDC number building is done with common and special auxiliaries, with "subdivide as", with the "telescope" method (use of the apostrophe as a synthetic contraction symbol) and, to tell the truth, with muddling. The single entry is excellent for shelf location, number-built it is apt to conceal information unless supplied with explanations e.g. as alphabetic index, guide cards. The construction of the tables so as to encourage one type or the other, very much affects the characteristics of the alphabetical index. We have enumerative classification with simple alphabetical indexes like the LC, we have permuted classifications with simple indexes like US by E. Wåhlin, we have Colon, which is single-entry with chain index and we have ordinary UDC, partly faceted with auxiliaries etc. and simple alphabetical index, very unsatisfactory for the retrieval of what is called "concealed information". FID Study Committees have decided to "intensify study of outstanding UDC structural and notational problems, e.g.[16]:

"elaboration of the -0 general auxiliaries in Table I.k. and possible generalization of certain -1/-9 special auxiliaries now under 62, etc. - optimal use of the apostrophe ' and asterisk * signs in the UDC ...".

We have witnessed that FID has whole-heartedly adopted an extension of the synthesis and number-building practice. On the other hand E. Wüster, the very same year (1969) asserts[17]:

"Die Entwicklung im Klassifikationswesen geht auf koordinierende Systeme und in der DK auf eine koordinierende Verwendung der Hauptzahlen hin".

Then should the transformation of the UDC into a thoroughly faceted system which is envisaged in present day plans really be encouraged, if it means single entry and aspects like Brown or Ranganathan? Or should instead coloning be encouraged with Perrault relators in order to avoid muddles? The formal contradictions within UDC practice, the coexistance of multiple locations, muddled or not with number built single entries complicated by the case of the twin hierarchies makes UDC unsuited for shared cataloguing.

THE UNIVERSAL DECIMAL CODIFICATION

According to "UDC Revision and Publication Procedure", FID 429

"2.23 A subject classed may be simple, compound or complex:
(1) simple, if it reflects only one facet;
(2) compound, if it reflects several facets within the same conventional class;
(3) complex, if it reflects several facets in different conventional classes.
2.31 Main UDC numbers, corresponding to main concepts ...
2.32 Auxiliary numbers ... corresponding to subsidiary concepts ..."

This is not true. It should be corrected thus: "A subject gets a simple, compound or complex notation in the UDK." The second full edition mentions "nombres simples" and "nombres composés". UDC practice relies heavily on complex notation with coloning for missing simple con-

cepts as 530.145:54 for quantum chemistry. Besides, mentioning facets, the notation for a particular concept varies from one main class to another. Just another citation out of FID 429 (which as noted above, has been declared as no more valid, although it has not been replaced):

"2.4. Facet and feature representation in the UDC notation ...
2.41 direct subdivisions ...
2.42 auxiliary subdivisions ...
2.43 colon-related subdivisions ...
2.44 The order 2.41 to 2.43 foregoing is the preferred order of choice in deciding between two or more possible ways of classifying."

Working from an abridged edition, not having access to existing subdivisions, the classifyer should consider auxiliaries first and coloning second. How many do? Here is another likelihood for identical material to be classified in different ways. Strings of colored numbers most often do not much improve retrieval as compared with ordinary multiple location. They are not found in indexes. They do not form hierarchies. With revision consisting mainly in subdivision and classification consisting mainly in muddling, how about retrieval? Just as the master version has never materialized in spite of all the talk about it, so the thesaurus has never materialized in spite of all the talk about it. Classification codes are fraught with meaning for the professional people but not for ordinary people. A classification system with shaky hierarchies and without adequate indexes and with users all muddling their own way with a lot of schedules at different levels and updating is not the proper one in shared cataloguing.

THE ROOF

In 1971 FID/CCC issued an "Important Announcement" (C71-30) "FID/CCC's New Policy for a Standard Reference Code (SRC)":

"When in 1969 the Central Classification Committee FID/CCC launched its UDC Development Programme for the 1970s, it was hoped that the recently demonstrated usability of UDC in mechanized information systems ... would convince the sponsors of major information systems like UNISIST (Unesco/ICSU) of its viable unifying role without really radical restructuring - ... At its Warsaw meeting on 26-29 October 1971 FID/CCC reaffiremed the principle of universality and the need for maximum stability in the UDC (once the more urgent revisions are completed), but adopted the following resolutions:
A. Opting for more urgent and radical action than that suggested by a July meeting of its ad hoc WG, which had recommended adoption of UDC without radical restructuring - though offering to prepare a special improved UDC edition if more could be learnt about UNISIST's requirements, and ... RESOLVED that a small, compact Group ... be formed to elaborate ... a Standard Reference Code (SRC) derived from the UDC and other appropriate sources and intended to form the future superstructure of the UDC. ...
B. RESOLVED FURTHER that all FID national members and: or UDC committees FID/C ... committees and other known UDC interests be immediately informed about the new CCC policy concerning the SRC and its implications for the future UDC superstructure ....".

Thus, SRC was intended[19]:

"to serve as a model for improving the UDC structure, terminology and notation-
to provide an international reference code ("roof classification" with coupling devices to different indexing languages) for unifying and switching between otherwise incompatible classifications, thesauri, etc., especially in such major information systems as the UNISIST project."

Next, in 1972, the project was taken from FID/CCC and a new FID/SRC Working Group, directly responsible to the FID Council, was reconstituted, and the name changed from Standard Referral Code to Subject-field Reference Code[20]. In 1972, also, the Broad System of Ordering, BSO, (the UNISIST name for SRC), was completely divorced from UDC. What happened to the "roof"? Originally UDC itself was more or less considered to be the "roof"[21]:

"UDC as "Roof Classification" for UNISIST."

also, [22]:

"if SRC were to differ from UDC in structure and notation, it was questionable whether a strictly UDC committee should or could assist in its formulation."

and [23]

"there has arison in FID circles the idea of making a largespan UDC "roof scheme", under which could be hung, at different ceilings or rafter levels and in various positions on each, the relevant special classifications, thesauri or descriptor-lists, as well as the more detailed UDC divisions themselves...".

This new UDC "roof" superstructure transformed by SRC never materialized - along with the "master version" and the "thesaurus". The BSO has materialized as a schedule designed for switching large blocks of information. Now there remains the problem of UDC 4. It was vacated in 1964. In 1968[24], UDC users were invited to send in proposals to the Classification Department of FID and this resulted in quite a number of claims, e.g.[25]:

Science and technology (generally)

or [26]

"such major new areas as the environment (ecosphere), ethology, psychology & human factors engineering; bionics, cybernetics & information theory; and the life sciences; especially in relation to the environment (biosphere)"

or [27]

"The sciences of organization and information, i.e.: Systems sciences. - Cybernetics. Information theory. Control theory. - Linguistics. Languages. - Information processing. Computing science"

i.e. coherent subjects, lacking or badly placed. But this proposal (Swedish) was immediately rejected by CCC and the Life Sciences/Environment proposal (G.A. Lloyd) adopted [28]. Looking into BSO, what do we see if not the Swedish proposal practically intact under the first heading:

"Computer science. - Systemology & cybernetics. - Information sciences & techniques. - Organization: science, techniques & forms."

and under the third heading:

"General biology. - Microbiology, Virology. - Botany. Plant biology. - Zoology. Animal biology. - Agriculture, incl. Veterinary sciences. - Forestry. - Wildlife exploitation. Aquaculture. Fisheries. - Environmental and natural resources."

only somewhat tighter than the adopted UDC proposal. FID/C 4 Life Sciences and FID/C 40 Environment - if anything materializes - are capable, particularly

FID/C 40, to upset substantial areas of UDC 5 and 6 to close the hole at 4. This, added to the other drastic revisions envisaged[29], will no doubt speed up the end of UDC as a universal classification system, because there is a need today for a ready and steady classification system for shared cataloguing.

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